DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
PROVINCE OF NOVA SCOTIA

HIGHWAY 104 NEW GLASGOW TO SUTHERLANDS RIVER COMMUNITY IMPACT AND ROUTE EVALUATION STUDY

PROJECT NO. NSD18063

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REPORT TO

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
PROVINCE OF NOVA SCOTIA

ON

HIGHWAY 104 NEW GLASGOW TO SUTHERLANDS RIVER COMMUNITY IMPACT AND ROUTE EVALUATION STUDY

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1.0 INTRODUCTION

The Nova Scotia Department of Transportation and Public Works (TPW) is planning to upgrade Highway 104, the Trans-Canada Highway, between New Glasgow and Sutherlands River from a two-lane highway to a four-lane controlled access divided highway (the Project). TPW identified the need for the upgrading in 1992, and since then has been working to identify a design that best meets the objectives and needs of both the local communities and the Province.

The Project has two distinct sections. The first section consists of twinning the existing Highway 104 from New Glasgow to Pine Tree Road, a distance of about 7.6 km (Figure 1.1). In this section, two additional lanes will be constructed immediately adjacent to and south of the existing two-lane highway. In the second section, from Pine Tree Road east to Lamont Road, there are two route options under consideration. One option is to continue twinning the existing highway through to Lamont Road, a distance of about 5.2 km (Figure 1.2). The second option is to construct 5.4 km of new four-lane highway along a route that passes south of the existing Highway 104 and reconnects with it at a point just west of Lamont Road (Figure 1.3). Each of these two options for the second section has advantages and disadvantages, and both are similar in terms of financial cost.

Jacques Whitford Limited (JW) has been contracted by TPW to conduct a Community Impact Study and prepare a Route Evaluation Report with recommendations for a preferred route option. This report summarizes the Community Impact Study that was undertaken and considers the results along with the results of preliminary environmental assessment work to identify a preferred route for Highway 104 between Pine Tree Road and Lamont Road.

1.1 Background

In 2001, Neill and Gunter Ltd. conducted a Sutherlands River Crossing Study in order to evaluate the advantages and disadvantages associated with the two route options across the river. The study compared the construction costs and the environmental constraints at the two crossing locations. The environmental study involved consideration of geology and physiography, hydrology, vegetation, benthic invertebrates, fish and aquatic habitat, amphibians and reptiles, birds, mammals, rare or endangered species, and salt/fresh water marshes.

Neill and Gunter Ltd. (2001) recommended the bypass as the preferred option for the following reasons:

- Displacement of aquatic habitat is avoided;
- Impacts on the salt marsh are avoided;
- Archaeological concerns are avoided;
- Bird species on the Nova Scotia Department of Natural Resources cautioning list would not be impacted; and
- The bypass option would be slightly less expensive based on the costs of bridge structures.

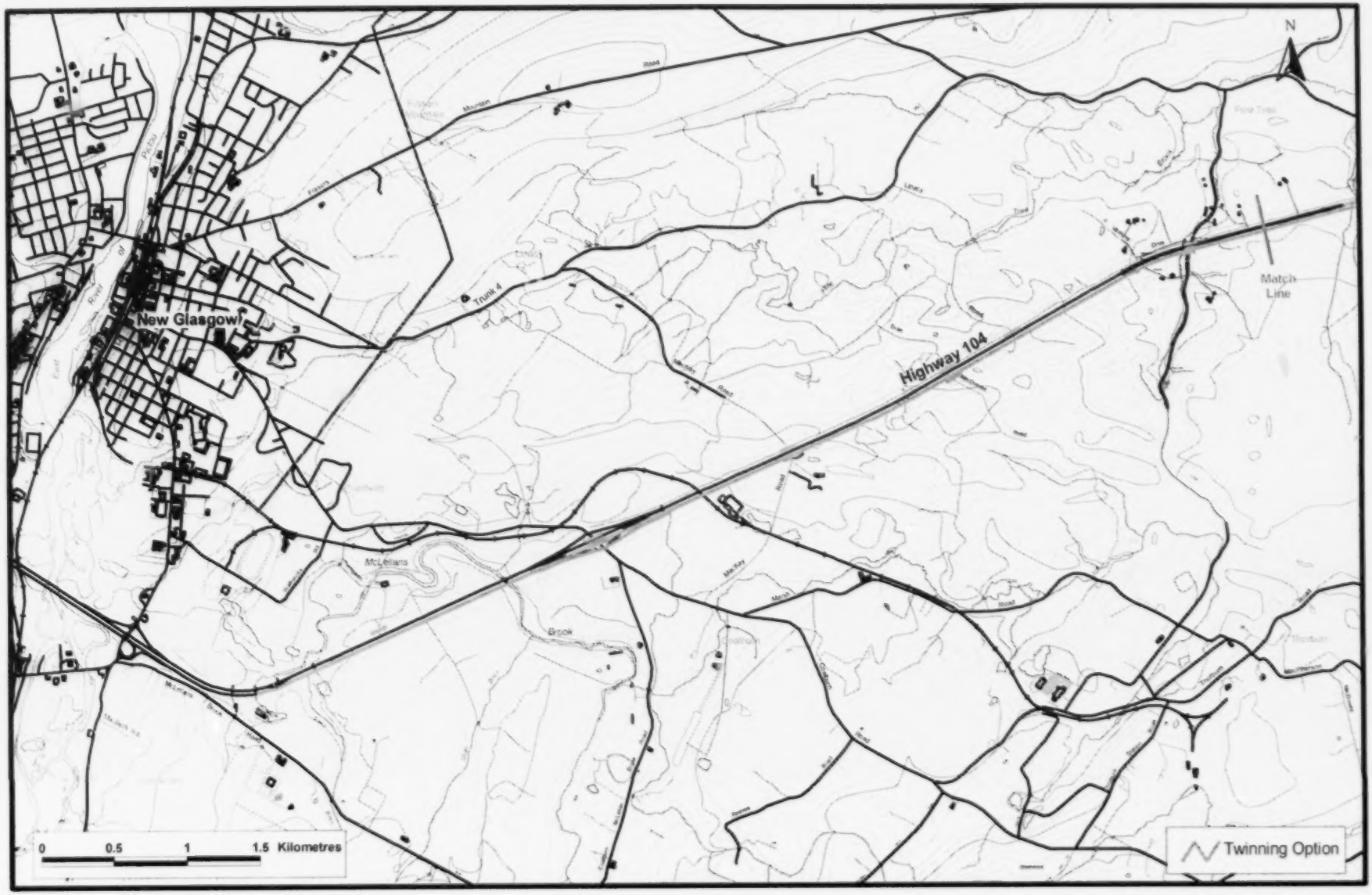

Figure 1.1

Highway 104 Upgrading
New Glasgow to Pine Tree Road

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Map Parameters
Projection: MTM
Datum: ATS77
Zone: 4
Scale: 1 : 35,000
Date: May 2004
Project Number: NSD18063

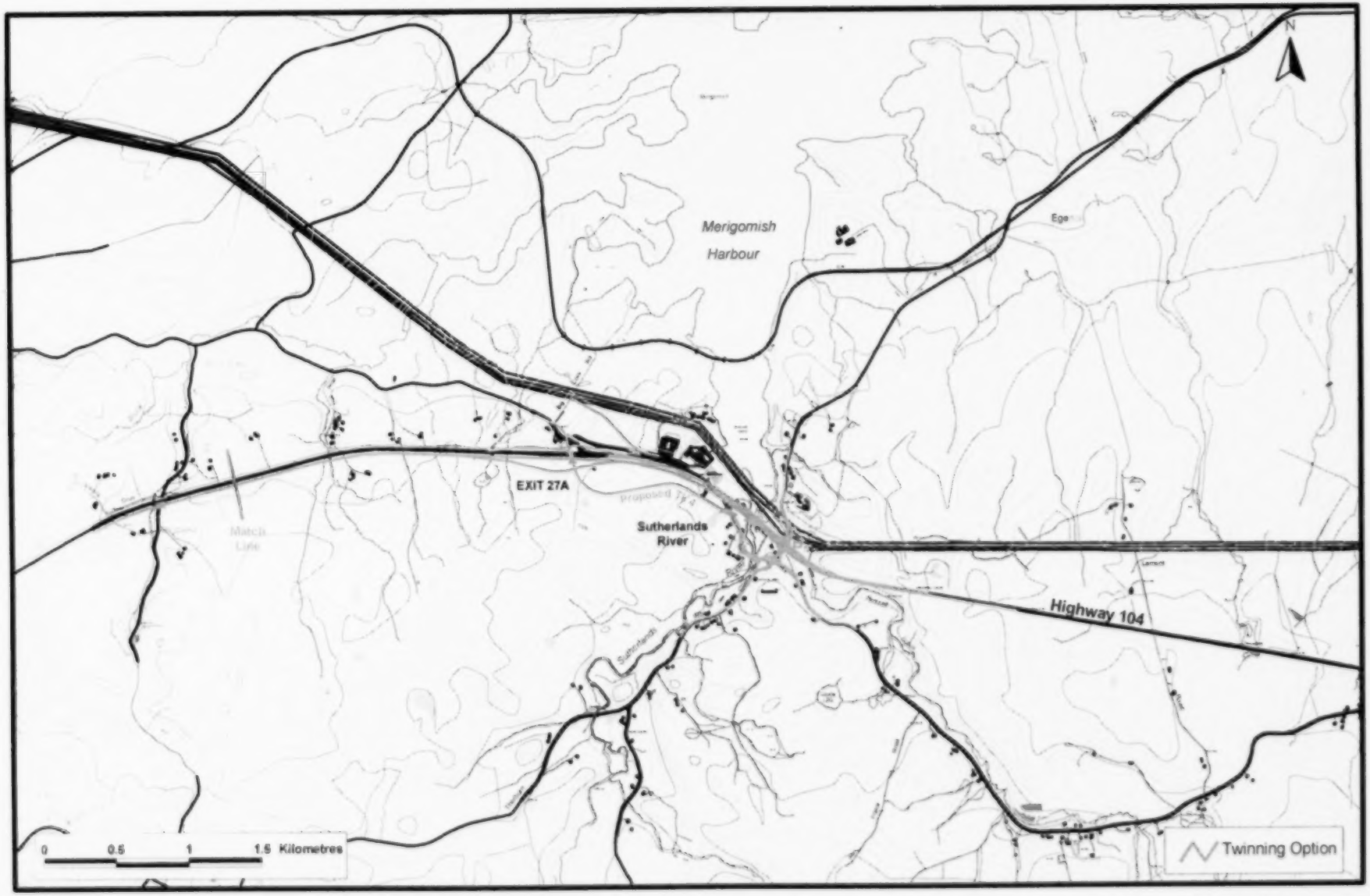

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Figure 1.2
Highway 104 Upgrading
Pine Tree Road to Lamont Road (Twinning Option)

Map Parameters
Projection: MTM
Datum: ATS77
Zone: 4
Scale: 1 : 35,000
Date: May 2004
Project Number: NSD18063

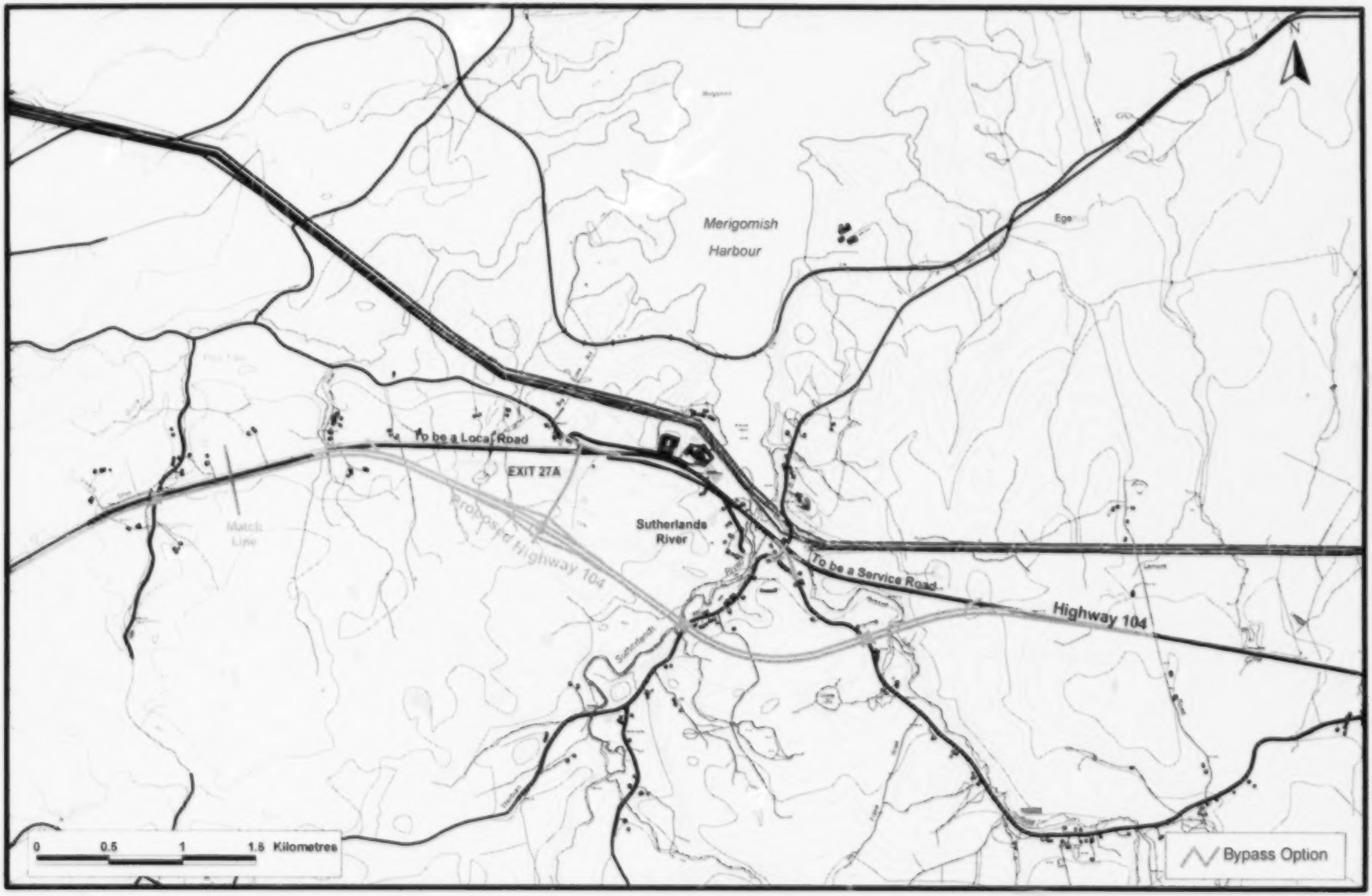

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Figure 1.3
Highway 104 Upgrading
Pine Tree Road to Lamont Road (Bypass Option)

Map Parameters
Projection: MTM
Datum: ATS77
Zone: 4
Scale: 1 : 35,000
Date: May 2004
Project Number: NSD18063

In November of 2002, the bypass option was presented at a public open house in the Sutherlands River area. Based on the public's response (*i.e.*, many public concerns associated with this option), TPW subsequently committed to reinvestigating both options in greater detail. This report forms part of these continuing investigations.

1.2 Study Scope and Objectives

It is in the best interest of the Project and the community potentially affected by both route options that a clear and transparent route evaluation process be employed to select the preferred route. This process must consider a number of environmental, social and economic criteria to allow for a more comprehensive comparative evaluation of the two options. To date, the decision making process has mainly focused on environmental constraints.

The Community Impact Study was undertaken to identify the public's concerns for consideration in the route evaluation process. The results of the study were integrated with preliminary environmental assessment work and used to determine the preferred route for the highway. The evaluation framework to support the route selection process was developed in consultation with TPW and local stakeholders. A multi-criteria evaluation was employed that weighs social, economic and environmental values identified through a participatory and transparent process.

2.0 STUDY METHODOLOGY

The methodology followed to arrive at a recommendation for a preferred route consisted of four main tasks:

1. Initial consultations and identification of stakeholders;
2. Preliminary issues scoping;
3. Characterisation of community values and impacts; and
4. Route selection.

2.1 Initial Consultations and Identification of Stakeholders

A stakeholder scan was conducted to identify appropriate contacts in the area immediately affected by the Project, as well as additional groups and individuals that may have an interest in the Project. In order to help develop the stakeholder list, commercial and residential property owners along the highway alignment options were first identified, along with attendees of TPW's November 2002 public open house, and other individuals who had expressed an interest in the project to TPW. Key informants were also contacted by telephone and asked whether there were other individuals, groups or organizations with an interest in the Project that should also be contacted. The key informants included prominent members of the local community, provincial government personnel, and local government representatives. A complete stakeholders database was maintained throughout the study.

A Project Bulletin was subsequently prepared (Appendix A) and distributed to the complete list of stakeholders. The mail-out included approximately 120 individuals and businesses. The bulletin described the Project and the proposed process for the Community Impact Study and Route Evaluation, and invited the public to participate in a future Public Working Session. The details of the session were also advertised in a local newspaper, in an effort to capture other interested parties.

2.2 Preliminary Issues Scoping

Preliminary issues scoping identified some key environmental, social and economic issues for both route options. These were identified from initial consultations with key informants, initial field work and review of existing environmental reports (*i.e.*, Neill and Gunter 2001), a discussion of the results of the November 2002 public open house and related correspondence between the public and TPW, and the knowledge and experience of the Project Team.

The initial field work, along both route options, focused on supplementing the earlier work conducted by Neill and Gunter (2001) which focussed mainly on the Sutherlands River Crossing. It included the following:

- An archaeological and heritage resources survey;
- A fish and fish habitat survey;
- Surveys of vegetation, herpetiles and birds;
- A survey of wetlands; and
- Noise monitoring.

The results of the field work discussed in this report should be considered preliminary. Specifically, the environmental information used to support the decision regarding the recommended route option was at a more general level than what would be typically included in an environmental assessment (EA) report prepared to satisfy provincial or federal regulatory requirements. A detailed EA is to be prepared once a preferred route is selected. The route selection process is more appropriately focussed on "higher level" environmental constraints, rather than a detailed analysis of potential impacts.

Based on the issues scoping exercise, potential interactions, issues and concerns were described, and a preliminary environmental and socio-economic screening and identification of typical mitigation measures were developed. The results of the issues scoping were summarised in a preliminary issues list that was presented at the Public Working Session for further discussion and comment from participants.

2.3 Characterisation of Community Values and Impacts

2.3.1 Public Working Session

A Public Working Session was conducted to present the results of the preliminary issues scoping, provide an opportunity for stakeholders and the public to add new issues and information, engage the community in a review of the advantages and disadvantages of the route options, and discuss ways to mitigate potential community impacts. The Public Working Session was conducted at East Pictou Middle School in Sutherlands River, NS, on March 6, 2004, and was attended by more than 60 individuals. The session was announced in the Project Bulletin mail-out to stakeholders (Appendix A) and an advertisement was placed in a local paper, *The Evening News*, the week prior to the session.

During the Public Working Session, participants were invited to comment on the potential interactions, issues and concerns that had been identified. These included social, economic and environmental values associated with the two route options. Issues or concerns that were not adequately identified prior to the session were documented. Public Working Session participants were also encouraged to provide qualitative and quantitative descriptions of these values as they now exist.

Subsequently, participants were asked to further define the nature of the potential interactions between the Project and individual social, economic and environmental values, and describe them as: positive; negative; neutral; or uncertain. Again, participants were encouraged to provide input into defining qualitative and quantitative descriptions of the scale or size of these interactions, focusing on a comparison of the two route options. It was also important to describe the typical mitigation measures that may be employed so that these would be taken into account in the evaluation. Participants were asked for ideas on ways to mitigate possible community impacts through design, routing, signage, timing, ongoing public participation, and other measures.

A summary of the results of the March 6th Public Working Session was mailed to stakeholders in a subsequent bulletin. This follow-up bulletin, also in Appendix A, included a description of community values identified and described during the session. In addition, individuals were invited to comment on the content of the summary, or register additional comments or concerns. This gave those unable to attend the Public Working Session another opportunity to provide their thoughts or opinions.

2.3.2 Exit Survey

At the conclusion of the Public Working Session, an exit survey was provided to participants (Appendix B). Surveys were completed at that time, or were subsequently mailed in. In total, thirty-six completed surveys were returned.

The exit survey asked participants to record their view on a number of issues related to the two highway route options. Specifically, this included impacts on:

- Local businesses;
- Economic development opportunities;
- Agricultural practices;
- Forestry;
- Recreation;
- Community life;
- Access to properties;
- Use and enjoyment of land;
- The natural environment; and
- Public health and safety.

Space was also provided on the survey for additional issues or concerns to be noted, providing opinion on the usefulness and quality of the Public Working Session, and general comments.

2.3.3 Description of Community Values and Impacts

Community values and impacts, associated with both the twinning and bypass options, were described from an analysis of the results of the Public Working Session, the exit survey, and additional comments

received from stakeholders. The described community values were categorized, qualitatively summarised and given a relative ranking with respect to the two options.

2.4 Route Selection

A route evaluation model was designed to evaluate the impacts of both route options. The model used a multi-criteria evaluation process that considered multiple dimensions (*i.e.*, economic, social and environmental). Information regarding the impacts on the social, economic and environmental values was used to define the nature of the interactions between the Project and the key issues or concerns, and the relative scale or size of these interactions. As previously described, this process incorporated stakeholder participation in the evaluation of the desired option for each criteria (*i.e.*, valued environmental components, or VECs, and valued socio-economic components, or VSCs).

For each option, impacts on each criterion were coded as follows:

Stronger negative impact	-2
Negative impact	-1
Uncertain or neutral impact	0
Positive impact	+1
Stronger positive impact	+2

The overall objective of the route evaluation process is to identify the most favourable option – that is, the route and mitigation options that result in the lowest overall environmental, social and economic impacts. Application of the route evaluation model developed provided this solution by summing the coded impacts for all criteria for each option. The option with the lowest sum is the least preferred option. Each criterion was given equal weight.

With respect to the consideration of impacts on social and economic components as described by stakeholders, this multi-criteria evaluation methodology is based on "majority rule". In other words, the magnitude of the impacts was weighed according to the number of individuals impacted and/or the perceptions of the impacts as expressed by the majority of individuals. However, where there are specific concerns regarding the distribution of the impacts (*i.e.*, certain individuals or groups of individuals are impacted more than others), these are noted.

The results of this study will be presented to stakeholders in an Open House in the Sutherlands River area. At the Open House, the selected route option will be presented, and the Project Team will provide a clear and explicit description of the final model employed, the evaluation criteria, and the results obtained. In addition, there will be an opportunity for the public to provide additional comments on the route selection and mitigation for consideration prior to the finalization of the EA report.

3.0 POTENTIAL ENVIRONMENTAL, SOCIAL AND ECONOMIC ISSUES

Table 3.1 outlines the potential environmental, social and economic issues identified from the issues scoping exercise described in Section 2. These issues apply to both route options, although not necessarily equally or to the same degree.

Table 3.1 Potential Environmental, Social and Economic Issues

Issue Area	Issue
Local Business	• Access to local businesses • Access to visitors' centre • Disruption of local business during construction • Impacts on planned new businesses
Agriculture and Forestry	• Loss of agriculture and forestry land • Fragmentation of lands
Recreation	• Loss of use and enjoyment of land • Impacts on recreational use of land (including fishing, hunting, hiking, ATV/snowmobile, etc.)
Community Life	• Access to church (Sutherlands River Presbyterian Church) • Impacts on travel times • Noise due to proximity to highway • Impacts on archaeological and heritage resources • Impacts on the social fabric of the community
Property	• Isolation of properties • Fragmentation of lands • Loss of home and property • Loss of enjoyment of property • Access point to highway and other roads from properties
Environment	• Impacts on fish • Impacts on wetlands and watercourses • Loss of forest habitat • Impacts on wildlife • Impacts on birds and waterfowl • Air quality
Health and Safety	• Highway traffic safety • Traffic levels • Proximity of traffic to schools • Access and response times of emergency vehicles

The initial field work (*i.e.*, preliminary noise monitoring and surveys for archaeological and heritage resources; vegetation, herpetiles and birds; fish and fish habitat; and wetlands) along both route options identified a number of potential environmental issues. These are described in Table 3.2.

Table 3.2 Potential Environmental Issues Identified from Preliminary Field Work		
Valued Environmental or Socio-economic Component	**Potential Environmental Issue**	
	Bypass Option	**Twinning Option**
Uncommon or Rare Plants	• *Fraxinus nigra* (S3) found at one location. • *Sanguinaria canadensis* (S3S4) found at one location.	• *Fraxinus nigra* (S3) found at one location.
Rare or Sensitive Birds	• Canada Warbler found at one location. • Scarlet Tanager found near Sutherlands River.	• Canada Warbler and Sharp-tailed Sparrow found at Sutherlands River.
Rare or Sensitive Herpetiles	• Possible wood turtle hibernacula at Sutherlands River.	• None.
Wetlands	• Three wetlands affected by construction.	• Four wetlands affected by construction, including a relatively large estuarine wetland.
Fish and Fish Habitat	• Potential for deterioration of fish rearing and migration habitat with bank erosion and loss of portions of the flood plain.	• Loss of fish habitat with installation of piers in salt marsh.
Archaeology and Heritage Resources	• Probable 19th cemetery (reportedly two adults and three children buried on McCrae land on east side of Sutherlands River).	• Possible 19th century cemetery north of Irving Station. • Possible former Route 4 bridge remnants.
Noise	• Significant increase in noise levels along the bypass route will result.	• Slight decrease in noise along the twinned route.

More uncommon or rare plants are found along the bypass option than the twinning option. However, none of these species is particularly rare.

Two rare or sensitive bird species are associated with both options. Canada Warbler and Scarlet Tanager are found along the bypass option, while Canada Warbler and Nelson's Sharp-tailed Sparrow are found along the twinning option. Scarlet Tanager rarely breeds in Nova Scotia; however, its population in Nova Scotia is considered secure and the Canadian Wildlife Service (CWS) has not identified it as a species of concern. Canada Warbler populations in Nova Scotia are considered to be secure; however, CWS has concerns regarding long-term population trends for this species over large areas of North America. Nelson's Sharp-tailed Sparrow is a yellow-listed species by Nova Scotia Department of Natural Resources (NSDNR), indicating that it sensitive to anthropogenic activities and natural changes. Populations of this species in Nova Scotia and elsewhere in North America have been substantially reduced as a result of the dyking of salt marshes to create agricultural land. These results would indicate that the twinning route contains more sensitive bird habitat than the bypass route.

The freshwater portion of Sutherlands River supports a population of wood turtles and the area around the bridge crossing for the bypass option contains habitat suitable as winter hibernacula for this species. Wood turtles are a red-listed species, indicating that their populations in Nova Scotia are believed to be at risk. The twinning option crosses Sutherlands River at a point where it is influenced by the tide.

Wood turtles are unlikely to occur in this area. As such, the bypass option contains the most sensitive herpetile habitat.

Three wetlands are found along the bypass option, while four wetlands are found along the twinning option. In addition, the largest and most valuable wetland is found along the twinning option (a brackish marsh habitat along the Sutherlands River estuary). This would suggest that the twinning option contains the most sensitive wetland habitat.

Fish and fish habitat field work was conducted to supplement the earlier work undertaken by Neill and Gunter in 2001. Along the right-of-way for the Project, Sutherlands River and Russell Brook will be impacted by both the twinning and bypass options. The species observed in Russell Brook included: brook trout, brown trout, American eel, Atlantic salmon, creek chub and banded killifish. Current siltation and periods of low discharge would limit the potential for spawning habitat in Russell Brook. At the point of crossing for the bypass option, Sutherlands River can be characterised as being made up of long pools with small sections of riffles. Substrate composition in the pool area is made up of sand and silt, while cobble and gravel size rocks dominate riffle zones. Overall bank erosion sensitivity at the site can be described as low to moderate. A number of fish species were identified during surveys. The area is characterised as having good salmonid rearing habitat, with limited spawning. At the point of crossing with the twinning option, Sutherlands River can be characterised as a typical salt marsh (Neill and Gunter 2001). A number of fish species are found to use the area, as it provides rearing, migration and breeding habitat. With respect to fish and fish habitat, the bypass option is preferred, provided that in the design the use of fill in the flood plain on the west side of the river is minimized and prevention of erosion on the east side is successful.

With respect to archaeological and heritage resources, there was a concern over the potential for an Acadian settlement along the mouth of the Sutherlands River, including a possible dyke remnant. This concern was identified in the 2001 Neill and Gunter report. The dyke could be negatively impacted by the twinning option. Subsequent investigation has found no evidence of Acadian occupation in the area and that the physical feature (*i.e.*, potential dyke remnant) along the river bank likely occurred naturally. Furthermore, the feature is outside of the impact area for the twinning.

There is also a report of a 19th century cemetery approximately 120 m north of the present-day Irving Station on Highway 104, but this cemetery has not been formally recorded. It is unlikely that this will be impacted by the twinning as it lies outside of the footprint of the alignment. In addition, the rerouting of Trunk 4 will cross the Sutherlands River at what was the location of the former Route 4 bridge. Disruption or loss of this feature is not considered to be significant. The close proximity of the MacKay property and historic building to the twinning route option is also noteworthy. With respect to the bypass option, no archaeological and heritage resources have been identified along the route with one exception. Local/anecdotal history notes that there is a historic cemetery (reportedly two adults and three children, victims of disease, buried on the McCrae land). Follow-up field work has identified the

probable location of the 19th century family burial plot. This cemetery lies near the centreline of the right-of-way for the bypass option. Available information suggests that both the twinning and bypass routes would have impact on archaeological and heritage resources, and avoidance or appropriate mitigation would need to be implemented.

With regards to noise impacts, the twinning option would likely represent a slight to noticeable reduction in the noise nuisance. This would occur because the traffic could maintain a more even speed through the occupied area. Engine braking by trucks would be reduced, but would not likely be completely eliminated. Traffic speed would be higher overall, with a slight increase in the potential for noise emission; however, the road surface would likely be of a higher maintained quality, acting to reduce the noise. If the bypass option were selected, the noise levels along the bypass route would essentially be the same as those on the twinned route, and the major difference in impact would occur because of differences in population density and population sensitivity to noise. There is a similar distribution of residences along the bypass route; however, the sensitivity to noise is much greater on the bypass corridor. The impact there would be significant and negative, because of the low existing noise levels.

The initial field work and environmental analyses conducted by JW supplement the previous work carried out by Neill and Gunter in 2001, which was restricted to an examination of the environmental contraints associated with the Sutherlands River crossing and not along the alignments as a whole. In particular, Neill and Gunter (2001) reported the following:

- *River Hydraulics.* With the twinning option, additional structures are not likely to impact river hydraulics because the existing Highway 104 bridge structure is the current controlling hydraulic feature at this location. With the bypass option, the hydraulic function of the main channel and floodplain are highly linked, and any reduction in the ability of the flood plain to convey flood flows will have detrimental impact on the main channel.

- *Flood Storage.* With the twinning option, displacement with fill for bridge approaches is not expected to have a discernable impact on flood storage. With the bypass option, displacement of flood storage provided by a wetland area is expected to have minimal impact.

- *Fisheries.* Sutherlands River supports a recreational fishery. The primary function of the river at the crossing location for the twinning option is described by Neill and Gunter (2001) as primarily for fish passage, while the crossing location for the bypass option was described as likely providing rearing habitat.

- *Migratory Birds.* The salt water marsh potentially impacted by the twinning option is considered to be significant habitat for migratory birds. In contrast, the fresh water wetland potentially impacted by the bypass option is noted as not providing habitat for migratory birds.

- *Rare or Endangered Species.* Nelsons Sharp-tailed Sparrow, a yellow-listed species with NSDNR, was identified as potentially impacted by the twinning option. Neill and Gunter Ltd. (2001) noted no rare or endangered species as present along the bypass option.

- *Archaeological and Heritage Resources.* Three sensitive archaeological features associated with the twinning option, consisting of a cemetery, the MacKay property, and an historic dyke were noted. No significant archaeological resources were identified for the bypass option.

3.1 Preliminary Screening and Identification of Typical Mitigation Measures

Overall, the above results have identified a number of potential interactions between the Project (both twinning and bypass options) and valued environmental and socio-economic components. These are summarised in Table 3.3, along with the mitigation measures that are typically employed in similar projects.

Table 3.3 Summary of Potential Project Interactions and Typical Mitigation Measures

Valued Environmental or Socio-economic Component	Potential Interaction	Typical Mitigation
Local Business	• Access to local businesses. • Access to visitors' centre. • Disruption of local business during construction. • Impacts on planned new businesses.	• Fair market value for all required lands. • Signage for local businesses along the new highway. • Maintenance of access to secondary roads at all times, including during construction.
Agriculture and Forestry	• Loss of agriculture and forestry land. • Fragmentation of lands.	• Fair market value for all required lands. • Ensuring farm machinery and forestry trucks and equipment have access to lots via parallel access roads and/or underpasses where warranted. • Concern for increased trespassing as a result of construction of parallel access roads could be mitigated by locked gate for the access roads.
Community Life	• Loss of use and enjoyment of land. • Impacts on recreational use of land (including fishing, hunting, hiking, ATV/snowmobile, etc.). • Access to church (Sutherlands River Presbyterian Church) and Community Centre. • Impacts on travel times. • Impacts on archaeological and heritage resources. • Impacts on the social fabric of the community.	• Maintenance or provision of access to secondary roads during construction. • Scheduling of construction activities built into contract documents. • Implementation of dust control. • Construction of retaining walls to minimize infringement on properties. • Archaeological and Heritage Resource Contingency Plan during construction.

Table 3.3 Summary of Potential Project Interactions and Typical Mitigation Measures		
Valued Environmental or Socio-economic Component	**Potential Interaction**	**Typical Mitigation**
Property	• Isolation of properties. • Fragmentation of lands. • Loss of home and property. • Loss of enjoyment of property. • Access point to highway and other roads from properties.	• Avoid the isolation of properties to the extent possible. • Locate and construct secondary roads. • Ongoing consultation with land owners. • Reduce noise and visual effects through landscaping.
Archaeology and Heritage Resources	• Probable 19th cemetery (reportedly two adults and three children buried on McCrae land on east side of Sutherlands River). • Possible 19th century cemetery north of Irving Station. • Possible former Route 4 bridge remnants. • Proximity to heritage structures (MacKay residence).	• Avoidance or relocation of archaeological and heritage features where feasible. • Archaeological and Heritage Resource Contingency Plan during construction. • Further archaeological investigation and documentation of features to be affected.
Health and Safety	• Highway traffic safety. • Traffic levels. • Proximity of traffic to schools. • Access and response times of emergency vehicles.	• Provision of alternative parking for the church. • Request that TPW explore an alternative alignment for Trunk 4.
Noise	• Noise impacts. • Loss of enjoyment of land.	• Consideration of noise mitigation during highway design (*e.g.*, berms, landscaping).
Fish and Fish Habitat	• Potential for deterioration of fish rearing and migration habitat with bank erosion and loss of portions of the flood plain. • Loss of fish habitat with installation of structures (*e.g.*, piers in salt marsh).	• Environmental assessment will address mitigation measures for fish and fish habitat. • Potential process for harmful alteration disruption or destruction (HADD), including habitat compensation if necessary.
Wetlands	• Wetlands affected by construction, including a relatively large estuarine wetland.	• Environmental assessment will address mitigation measures for wetland. • Mitigative measures could include seasonal avoidance, working on frozen ground, re-creation of lost habitat.
Rare Plants	• *Fraxinus nigra* (S3) and *Sanguinaria canadensis* (S3S4) were found along one or both proposed routes.	• Environmental assessment will address mitigation measures for rare plants. • Mitigative measures could include avoidance, landscaping/grading, propagation.
Wildlife	• Canada Warbler, Scarlet Tanager, and Sharp-tailed Sparrow were found along one or both proposed routes. • Possible wood turtle hibernacula at Sutherlands River.	• Environmental assessment will address mitigation measures for wildlife. • Mitigative measures could include seasonal avoidance (*i.e.*, breeding season).

4.0 COMMUNITY VALUES AND PERCEIVED IMPACTS

4.1 Results of the Public Working Session

The list of potential environmental, social and economic issues, identified during the preliminary issues scoping exercise (Table 3.1), was presented at the Public Working Session as a basis for comment and further discussions. This led to identification and description of the issues and concerns of particular importance to the community members potentially affected by the Project. The results of the Public Working Session are described below.

4.1.1 Local Business and Economy

Participants expressed concern that the relocation of small, home-operated businesses, as a result of the bypass option, to a more visible and accessible location would be difficult. Of particular concern are those who rely on their business as the sole income for their families. Participants did not express a concern for the loss of the service station west of the Sutherlands River crossing in the event that the twinning option was selected. Participants recognized that development of business may change with time and that future planned business may be restricted if access to the community is limited. Concern regarding access to the Sunrise Trail was also raised as it is thought that access will be hindered by both options. Suggested mitigation included signage for local businesses along the new highway and maintenance of access to secondary roads at all times, including during construction.

4.1.2 Agriculture and Forestry

Participants stated that most of the land in the area is used for forestry and that forestry land is valued by the community, mainly because of the employment it provides. Participants believe that fragmentation of forest land will be significantly greater as a result of the bypass option; however, there was general agreement that the overall impact is relatively small due to the size of the highway footprint compared to the amount of forest land in the area. Suggested mitigation included adequate compensation for those whose land is used and ensuring that farm machinery and forestry trucks and equipment have access to woodlots via parallel access roads and/or underpasses where warranted. Landowners expressed concern for increased trespassing as a result of construction of parallel access roads and suggested that these access roads include a locked gate.

4.1.3 Community Life

The topic of community life received the greatest amount of attention during the Public Working Session. The fabric and integrity of the community was felt to be very important. Participants had many concerns with respect to the fragmentation of the community that would occur as a result of the bypass option. The bypass option will physically divide and separate friends and families. People

believe that the bypass option will result in significant impacts on the social fabric of the community. There is also concern that the Community Centre, which is very active now, will suffer if the bypass option is selected. The majority of the participants expected that the existing highway would one day be twinned; hence the area developed accordingly. In general, participants agreed that the twinning option will not result in fragmentation of the community.

Other issues associated with the bypass option described during the session included increased noise for many citizens, loss of enjoyment of wildlife viewing, and decrease/loss of recreational use of land for hiking, fishing, hunting, and use of ATVs and snowmobiles. The participants noted that access to recreational lands would be restricted if the bypass option were to be selected. Also, participants pointed out that the Sutherlands River Church is a heritage property. The community is concerned about potential impacts on the Pioneer Cemetery that is located between the soccer field and the Irving station, and another cemetery that is hidden in the woods near Sutherlands River.

Although the twinning option will increase access to the church, it will also result in increased noise and traffic and safety concerns. It was recognized that the bypass option will result in less traffic and noise at the church and schools and, potentially, increased safety.

In general, participants felt that the twinning option would result in a positive impact on travel time while the bypass will result in a negative impact, but recognized that this is dependent on where people live relative to the option selected.

Overall, the group recognized that there would be negative impacts on community life associated with both alignment options, but believed that the overall impact would be significantly greater for the bypass option.

Mitigation suggested included avoidance or relocation of archaeological and heritage properties, maintenance or provision of access to secondary roads during construction, scheduling of construction activities built in to contract documents, stockpiling of grubbed material to form a noise barrier, implementation of dust control, and construction of retaining walls to minimize infringement on properties.

4.1.4 Property

Participants raised concerns regarding isolation of properties and fragmentation of lands. It was recognized that there are negative effects associated with both options, depending on where you live; however, it appears to be a much greater issue for the bypass option since, for many years, residential development proceeded assuming that the highway would eventually be twinned. Some people whose land was expropriated for the highway several decades ago moved their houses to the Sutherlands River

(Thorburn Road) area and now feel threatened once more by the bypass route. Many people believe that the assurances given years ago regarding the alignment of Hwy 104 have been forgotten or ignored.

It was also recognized that some homes are in the direct path of the alignment and will be purchased, while others will not as they are close, but not close enough to meet the buy-out criteria. Again, this issue appeared to be a greater concern for the bypass option than for the twinning option. The mitigation suggested included avoiding the isolation of properties.

4.1.5 Environment

Participants value wetlands and watercourses, wildlife, endangered species, forest habitat and clean air, and recognize the potential effects on these components. Some details regarding wildlife sightings, such as bald eagles and cougars, were provided. Many people believe that since the saltwater extends up Sutherlands River, fish habitat in the area of the bypass could be as much affected as that in the estuary affected by the twinning option. They agreed that the environmental impact assessment process should determine these effects. With respect to the environment, participants believe that there would be a greater loss of habitat associated with the bypass route.

With respect to mitigation, compliance with federal and provincial regulations and compensation for loss of habitat were suggested.

4.1.6 Health and Safety

Participants were concerned about safety along the highway and agree that either option will result in increased safety. They also expressed concern for safety along secondary roads, particularly with respect to the twinning option. Participants expressed the belief that there would be a significant increase in traffic along Trunk 4, particularly near the church, which poses a safety concern. In addition, the local Fire Chief noted that emergency vehicle response time will increase with both options, yet slightly more so with the bypass option.

Mitigation suggested included provision of alternative parking for the church. Participants requested that TPW explore an alternative alignment for Trunk 4. Subsequent to the Public Working Session, TPW considered alternate alignments for Trunk 4, including those submitted by residents and stakeholders. After much consideration, TPW has indicated that there is not a technically and economically feasible alternative to the alignment of the Trunk 4 previously presented.

4.2 Results of the Survey

Individual stakeholders were asked a series of questions on their opinion of the impacts on valued environmental and socio-economic components associated separately with the twinning and bypass

options. Thirty-six surveys were completed. The distribution of answers is shown in Tables 4.1 and 4.2, along with the level of statistical significance of the differences in the distribution of responses (chi-squared (X^2) test). The statistical significance test is conducted to determine if the observed distribution among the categories is significantly different from a 1:1:1 distribution among those who responded "agree", "somewhat agree" or "disagree". If there is a significant difference, this indicates that respondents are not evenly split in their opinion and that there is a preference for one or two answers over the other(s).

Results of the survey clearly indicated that, in the opinion of respondents, the bypass option would have greater negative impacts than the twinning option. Specifically for the bypass option, there was a significant perception of negative impacts on: local business; forestry; recreation; community life; use and enjoyment of land; and the natural environment. For the bypass option, there were divided opinions regarding the impacts on agriculture and health and safety. With respect to the twinning option, opinions were more highly divided. Overall, a significant number of respondents disagreed with the statement that there would be negative impacts on local business, agriculture, and forestry associated with the twinning option.

Table 4.1 Distribution of Stakeholder Opinion on Impacts with the Twinning Option

Statement	Agree (%)	Somewhat Agree (%)	Disagree (%)	No Opinion (%)	X^2 (df = 2)	Level of Significance
Negative impact on local businesses	17	25	53	6	8.18	$P < 0.05$
Increase economic development opportunities	21	21	44	15	4.91	NS
Negative impact on agricultural practices	19	14	54	14	12.43	$P < 0.005$
Negative impact on forestry	11	25	50	14	9.74	$P < 0.01$
Negative impact on recreation	25	19	47	8	5.08	NS
Negative impact on community life	30	16	46	8	5.36	NS
Negatively affect access to properties	27	24	46	3	3.16	NS
Negative impact on use and enjoyment of land	32	19	46	3	4.16	NS
Negatively impact the natural environment	28	28	42	3	1.43	NS
Negatively affect public health and safety	24	22	46	8	4.33	NS

Note: NS = not significant, where $P > 0.05$.

Table 4.2 Distribution of Stakeholder Opinion on Impacts with the Bypass Option						
Statement	**Agree (%)**	**Somewhat Agree (%)**	**Disagree (%)**	**No Opinion (%)**	**X^2 (df = 2)**	**Level of Significance**
Negative impact on local businesses	57	27	11	5	12.74	$P < 0.005$
Increase economic development opportunities	14	8	72	6	28.65	$P < 0.001$
Negative impact on agricultural practices	27	30	22	22	0.31	NS
Negative impact on forestry	58	25	11	6	14.64	$P < 0.001$
Negative impact on recreation	50	22	17	11	7.75	$P < 0.05$
Negative impact on community life	65	19	11	5	19.94	$P < 0.001$
Negatively affect access to properties	68	22	8	3	22.16	$P < 0.001$
Negative impact on use and enjoyment of land	57	24	16	3	10.50	$P < 0.01$
Negatively impact the natural environment	70	16	11	3	24.66	$P < 0.001$
Negatively affect public health and safety	35	24	32	8	0.77	NS

Note: NS = not significant, where $P > 0.05$.

In the survey, respondents were also asked more generally about the types of impacts that concerned them most. Specifically, individuals were asked to rank the importance of impacts categorized as: local business; agriculture and forestry; community life; property; environment; and health and safety. The results for this were not statistically significant. In other words, there was no clear agreement on the relative importance of these categories of impacts. Impacts on property and community life did appear to be given a greater importance than other impacts, but this conclusion can not be reached with an acceptable level of confidence.

4.3 Summary of Community Values and Perceived Impacts

Community values and impacts, associated with the twinning and bypass options, are summarized from the analysis of the results of the Public Working Session, the exit survey, and additional comments received from stakeholders. The results are shown in Table 4.3.

Table 4.3 Summary of Community Values and Perceived Impacts		
Valued Environmental or Socio-economic Component	**Option with Greatest Perceived Negative Impact**	**Characteristics of Perceived Impact**
Local Business	Bypass	• Relocation of small, home-operated businesses to a more visible and accessible location would be difficult. • Those who rely on their business as the sole income for their families was of particular concern. • Future planned business may be restricted if access to the community is limited.
Agriculture and Forestry	Bypass	• Fragmentation of forest land will be significantly greater as a result of the bypass option, although highway footprint is relatively small.
Recreation	Bypass	• Loss of enjoyment of wildlife viewing. • Decrease/loss of recreational use of land for hiking, fishing, hunting, and use of ATVs and snowmobiles. • Access to recreational lands would be restricted if the bypass option were to be selected.
Community Life	Bypass	• The bypass option will fragment the community and result in significant impacts. • The social fabric of the community will be impacted. Concern that the Community Centre will suffer if the bypass option is selected. • Archaeological and heritage properties may be impacted, such as Sutherlands River Church, a Pioneer Cemetery that is located near the Irving station, and another cemetery near Sutherlands River. • Impact on travel times depending on where people live relative to the option selected.
Property	Bypass	• Majority of participants expected that the existing highway would one day be twinned; hence the area developed accordingly. • Some homes are in the direct path of the alignment and will be purchased, while others will not as they are close, but not close enough to meet the buy-out criteria.
Health and Safety	Uncertain	• Concern about potential increase in traffic along secondary roads and Trunk 4, particularly near the church, which poses a safety concern. • Emergency vehicle response time will increase with both options, yet slightly more so with the bypass option.
Environment	Bypass	• Belief that since the saltwater extends up Sutherlands River, fish habitat in the area of the bypass could be as much affected as that in the estuary affected by the twinning option. • Belief that there would be a greater loss of habitat associated with the bypass route.

5.0 SELECTION OF THE PREFERRED ROUTE

Table 5.1 shows the results of the multi-criteria evaluation.

Table 5.1 Multi-criteria Evaluation of the Route Options

Criterion	Coded Impact	
	Bypass Option	Twinning Option
Local Business	-1	-1
Agriculture and Forestry	-1	0
Recreation	-2	0
Community Life	-2	-1
Property	-2	-1
Archaeology and Heritage Resources	-2	-1
Health and Safety	0	0
Noise	-2	+1
Fish and Fish Habitat	0	-1
Wetlands	-1	-2
Rare Plants	-1	-1
Wildlife	-1	-1
Total	**-15**	**-8**

Coding: Stronger negative impact (-2); negative impact (-1); uncertain or neutral impact (0); positive impact (+1); stronger positive impact (+2)

Based on this analysis, the recommended route is the twinning option, scoring seven points better in the evaluation.

With respect to environmental criteria, the twinning option contains a larger number of environmental constraints for the components considered in the initial field work (*i.e.*, uncommon or rare plants, rare or sensitive birds, wetlands, and potential archaeological and heritage resources), while the single most sensitive environmental constraint (wood turtle) is associated with the bypass option. Potential impacts on fish habitat in Sutherlands River must be considered in the crossing design.

It should be emphasized that the area affected by the twinning option is already subject to disturbance associated with the existing road traffic, while the area of the bypass option is not. As such, construction and operation of the highway for the twinning option is expected to have a smaller incremental effect on terrestrial valued environmental components than establishment of a new four-lane highway in a relatively undisturbed area.

This analysis and recommendation is based on public and stakeholder consultation and preliminary environmental assessment data. An environmental assessment of the route selected by TPW will be undertaken. This process will further define the potential impacts of that route and will present, in detail, mitigative measures to avoid or minimize the potential effects as well as appropriate monitoring programs and compensation of lost habitat. The EA will evaluate the significance of the residual effects (*i.e.*, after mitigation is applied) and will make a recommendation regarding the environmental and socio-economic acceptability.

6.0 CONCLUSION

Based on the results of the public and stakeholder consultation program and the preliminary environmental assessment work, including the previous work conducted by Neill and Gunter Ltd. (2001), it is recommended that TPW proceed with planning and development of the twinning option. Planning will include an environmental impact assessment which will assess the potential environmental effects on the valued environmental and socio-economic components identified during the Community Impact Study and will present recommended mitigative measures to avoid or minimize the potential effects.

7.0 REFERENCES

Neill and Gunter (Nova Scotia) Limited. 2001. Sutherland River Crossing Study. Prepared for the Nova Scotia Department of Transportation and Public Works.

APPENDIX A

PROJECT BULLETIN
AND
SUMMARY BULLETIN

UPDATE
HIGHWAY 104 UPGRADING TO FOUR LANES NEW GLASGOW TO SUTHERLANDS RIVER

NOVA SCOTIA
Transportation and Public Works

Jacques Whitford
Consulting Engineers
Environmental Scientists
Risk Consultants

Project Summary

The Department of Transportation and Public Works (TPW) is planning to upgrade Highway 104, the Trans-Canada Highway, between New Glasgow and Sutherlands River from a two-lane highway to a four-lane controlled access divided highway (the Project). TPW identified the need for this upgrading in 1992, and since then has been working to identify a design that best meets the objectives and needs of both the local communities and the Province. The best design will also minimize negative social, economic, and environmental impacts.

The Project has two distinct sections (see map of proposed upgrade alignments inside bulletin). In the first one, the twinned section of Highway 104 will be extended from New Glasgow to Pine Tree Road, a distance of about 7.6 km. In this section, two additional lanes will be constructed immediately adjacent to and south of the existing two-lane highway.

In the second section, from Pine Tree Road east to Lamont Road, there are two route alternatives under consideration. One option is to continue twinning the existing highway through to Lamont Road, a distance of about 5.2 km. The second option is to construct 5.4 km of new four-lane highway along a route that passes south of the existing Highway 104 and reconnects with it at a point just west of Lamont Road. Each of these two alternatives has advantages and disadvantages, and both are similar in terms of financial cost.

Community Impact Study

It is in the best interest of the Project and the community to use a clear and transparent evaluation process to select the preferred route. This process must consider a number of environmental, social and economic criteria, and support a comparative evaluation of alternatives. To date, the decision-making process has mainly focused on environmental constraints and project costs. On behalf of TPW, Jacques Whitford Environment Limited (JWEL) will conduct a Community Impact Study to identify public concerns related to the two route alternatives. The results of the Community Impact Study will be integrated with preliminary environmental assessment work and used to determine the best route for the highway.

An Invitation

JWEL will work to develop an evaluation framework to support the route selection process in consultation with you. This approach will weigh the relative importance of social, economic and environmental factors identified through the Community Impact Study.

Preliminary consultation and the identification of issues began in the fall of 2003. JWEL contacted a representative group of stakeholders, both directly and indirectly impacted by the Project, in an effort identify community issues and concerns. In addition, as part of the Community Impact Study, you are being invited to participate in a Public Working Session to select the preferred route.

over

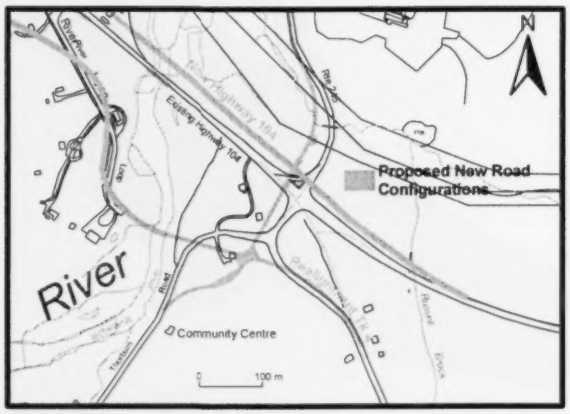
February 2004

Highway 104 Upgrading

New Glasgow to Sutherlands River

NOVA SCOTIA
Transportation and Public Works

Jacques Whitford
Consulting Engineers
Environmental Scientists
Risk Consultants



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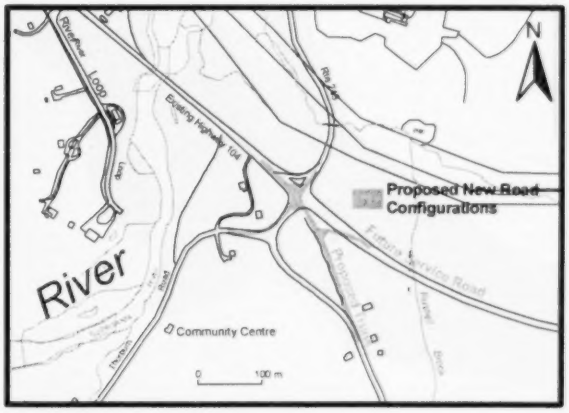

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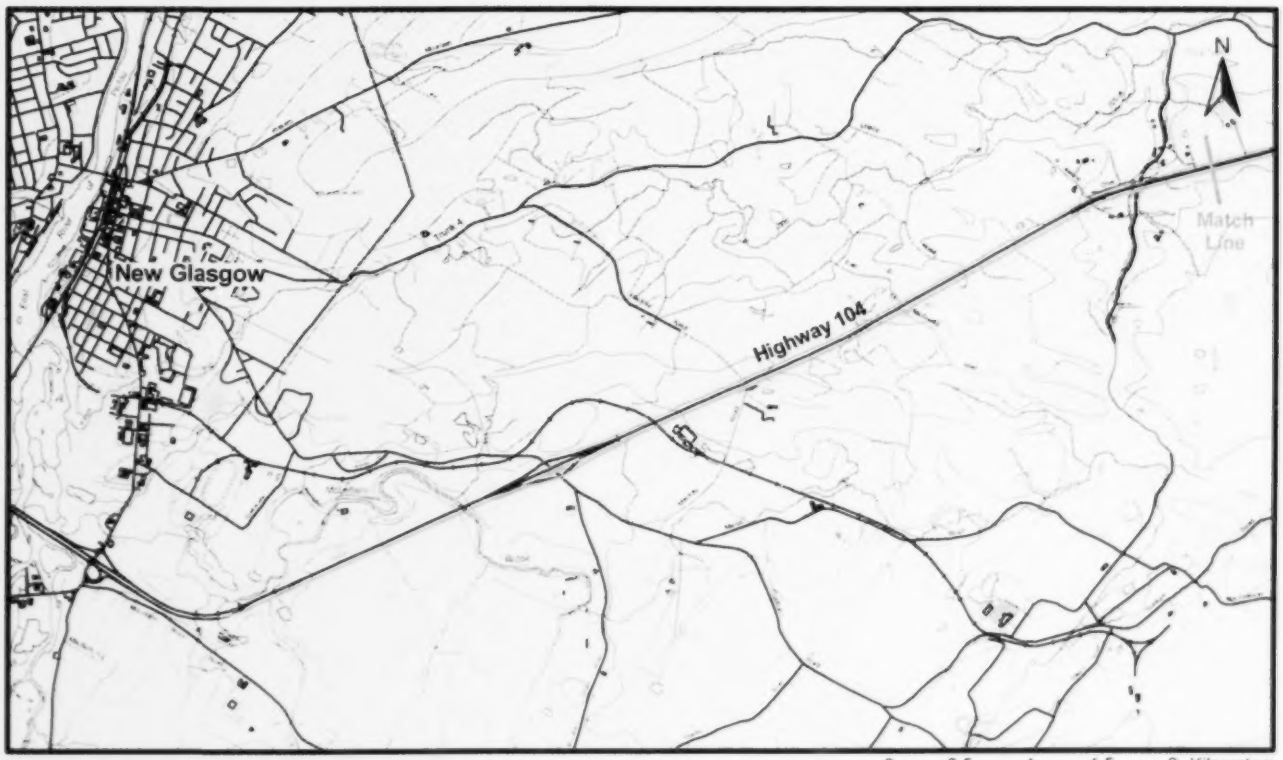
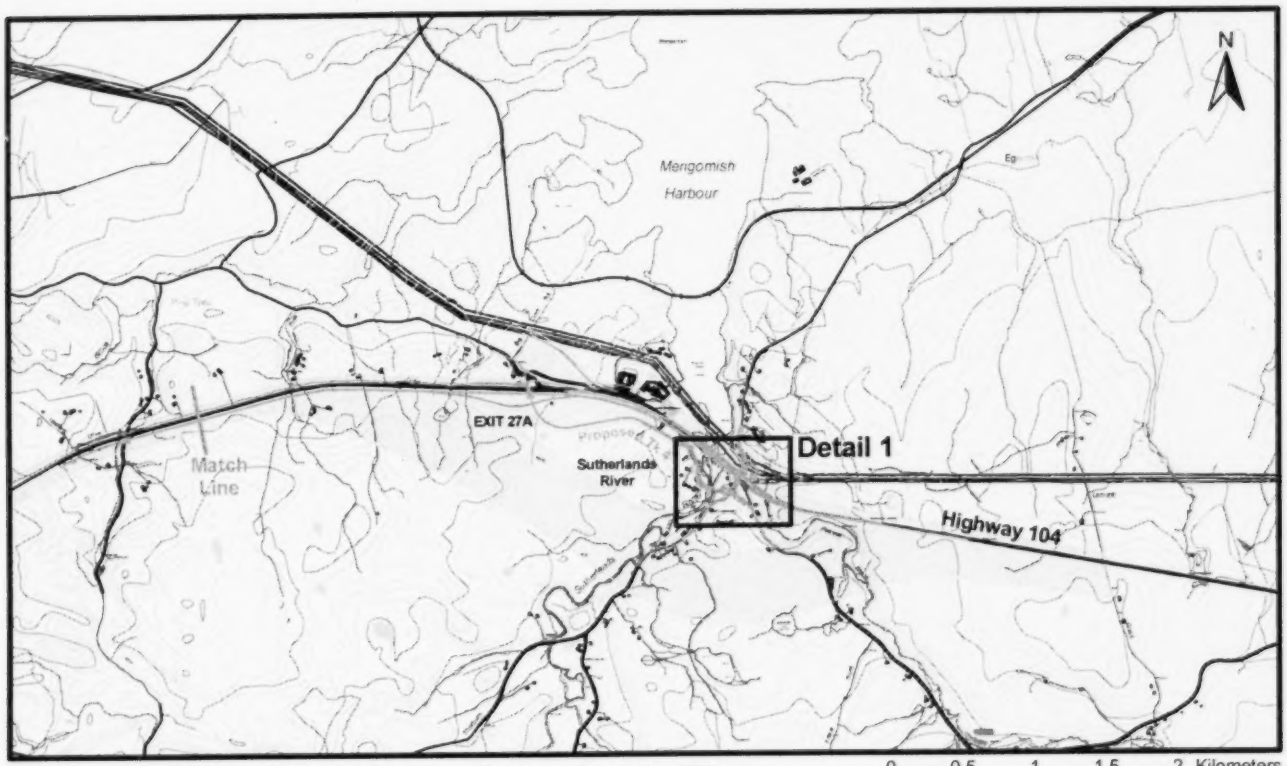
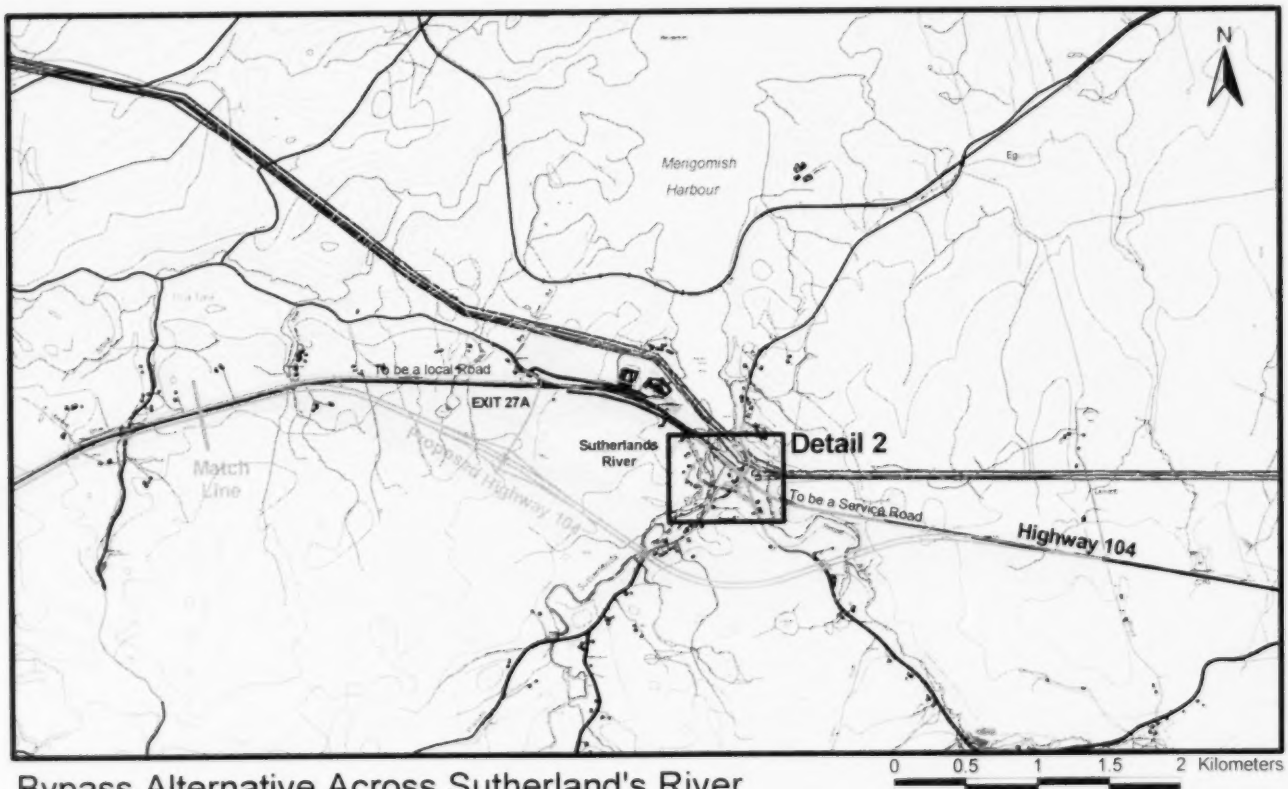


Twinning to Old Pine Tree Road



Twinning Alternative Across Sutherland's River



Bypass Alternative Across Sutherland's River

NOVA SCOTIA
Transportation and Public Works

UPDATE
HIGHWAY 104 UPGRADING TO FOUR LANES NEW GLASGOW TO SUTHERLANDS RIVER

Project Update
February 2004

Jacques Whitford
Consulting Engineers
Environmental Scientists
Risk Consultants

Public Working Session

JWEL will conduct a half-day Public Working Session (see details below) to discuss the issues that have been identified to date, provide an opportunity to add new issues and information, review the advantages and disadvantages of the route alternatives, and discuss ways to mitigate possible community impacts.

Specifically, participants will be invited to:

Comment on the issues and concerns associated with each of the two alternative routes;

Clarify or add issues or concerns that were not adequately described prior to this session;

Describe important social, economic and environmental attributes of the impact area as they now exist;

Describe the anticipated impacts of the Project on these social, economic, and environmental attributes, both positive and negative; and

Provide ideas for ways to mitigate possible community impacts.

The Public Working Session will provide a venue for you to share information, work with your neighbors to explore the issues, and discuss the advantages and disadvantages of each route alternative. Using a roundtable format, you will be encouraged to share your perspectives and contribute to the evaluation of the alternative routes.

Next Steps

JWEL will use the results of the Public Working Session to complete the Community Impact Study. This will be used, in conjunction with the results of environmental studies, to make recommendations to TPW regarding the preferred route. The approved alignment will be presented to the public at the end of the study.

Once a preferred route has been identified, the formal environmental assessment process will be completed to satisfy both federal and provincial regulatory requirements. Further information regarding the environmental assessment will be made available at a later date, and will be available on the Canadian Environmental Assessment Registry (http://www.ceaa.gc.ca/050/index_e.cfm).

Contact Information

For questions related to the Community Impact Study, please contact:

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Jacques Whitford Environment Limited
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For general questions related to the Project, please contact:

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Fax: (902) 424-0571
E-mail: hirdro@gov.ns.ca
Website: www.gov.ns.ca/tran

Public Working Session

Highway 104 UpgradingNew Glasgow to Sutherlands RiverPublic Working Session

Date: Saturday, March 6, 2004
Time: 1pm
Duration: 4 hours
Location: East Pictou Middle School

Please note that in the event of inclement weather, the Public Working Session will be postponed to the following:
Thursday, March 11, 2004, at 6 pm.

NOVA SCOTIA
Transportation and Public Works

Highway 104 Upgrading Project New Glasgow to Sutherlands River
Public Working Session Summary Bulletin
April 2004

On Saturday March 6, 2004, more than sixty people attended an afternoon workshop at East Pictou Middle School on the proposed upgrading of Hwy 104 from New Glasgow to Sutherlands River. The Public Working Session is an important part of a Community Impact Study being undertaken for the Department of Transportation and Public Works (TPW) by Jacques Whitford. The purpose of the workshop was to discuss the two options for routing the four-lane stretch of Highway 104 through the Sutherlands River area. During the session, information on the highway alignments options and the environmental assessment process was provided, issues and concerns were raised and clarified by the participants, and the potential impacts of the two routes on important local economic and community values were examined.

This newsletter provides a summary of what happened at that workshop, including the questionnaire that was distributed during the session. If you were unable to attend the workshop but would like to provide your thoughts and opinions, further written comments are welcome and the Jacques Whitford team will include them in their report to TPW. The team will accept comments until May 15, 2004. In late summer 2004, a public meeting will be held to present the selected alignment.

Information Timeline

April 2003:	TPW distributes a project update and commits to undertaking a community impact study
August 2003:	Jacques Whitford commissioned to conduct Community Impact Study of two alternative routes, and Environmental Impact Assessment
March 6, 2004:	Public Working Session in support of Community Impact Study
May 15, 2004:	Deadline for submission of additional comments following Public Working Session
Summer 2004:	Expected completion of environmental field work
Late Summer 2004:	Public Meeting to present selected alignment

Community Impact Study

Jacques Whitford provided a brief presentation at the March 6th Public Working Session to inform participants of the steps involved in identifying a preferred route. The steps include conducting a number of field studies such as ambient noise monitoring, flora and fauna studies, fish and fish habitat assessments, wetlands studies and archaeological and heritage resource

assessments. Another important step is the identification of the issues and concerns of community members potentially affected by both routes; these were raised and discussed during the session, along with opportunities to mitigate the negative impacts. These issues and concerns focused on social and economic impacts, and are summarized below. Based on participant responses, TPW subsequently approved additional noise monitoring to be carried out later this spring.

Anticipated environmental and socioeconomic impacts, after mitigation is applied, will be compared for each of the route alternatives. Based on this evaluation, a preferred route will be identified and recommended to TPW for approval. Once a route has been selected, an environmental impact assessment will be completed to satisfy both federal and provincial regulatory requirements.

Identified Community Issues

Local Business and Economy: Participants expressed concern that the relocation of small, home-operated businesses, as a result of the bypass option, to a more visible and accessible location would be difficult. Of particular concern are those who rely on their business as the sole income for their families. Participants recognized that development of business may change with time and that future planned business may be restricted if access to the community is limited. Concern regarding access to the Sunrise Trail was also raised as it is thought that access will be hindered by both options. Suggested mitigation included signage for local businesses along the new highway and maintenance of access to secondary roads at all times, including during construction.

Agriculture and Forestry: Participants stated that most of the land in the area is used for forestry and that forestry land is valued by the community, mainly because of the employment it provides. Participants believe that fragmentation of forest land will be significantly greater as a result of the bypass option; however, there was general agreement that the overall impact is relatively small due to the size of the highway footprint compared to the amount of forest lands in the area. Suggested mitigation included adequate compensation for those whose land is used and ensuring that farm machinery and forestry trucks and equipment have access to woodlots via parallel access roads and/or underpasses where warranted. Landowners expressed concern for increased trespassing as a result of construction of parallel access roads and suggested that these access roads include a locked gate.

Community Life: This is the component that received the greatest amount of attention. The fabric and integrity of the community is very important. Participants had many concerns with respect to the fragmentation of the community that would occur as a result of the bypass option. The bypass option will physically divide and separate friends and families. People believe that the bypass option will result in significant impacts on the social fabric of the community. There

is also concern that the Community Centre, which is very active now, will suffer if the bypass option is selected. In general, participants agreed that the twinning option will not result in fragmentation of the community.

Other issues associated with the bypass option described during the session included increased noise for many citizens, loss of enjoyment of wildlife viewing, and decrease/loss of recreational use of land for hiking, fishing, hunting, and use of ATVs and snowmobiles. The participants noted that access to recreational lands would be restricted if the bypass option is selected. Also, participants pointed out that the Sutherlands River Church is a heritage property. The community is concerned about potential impacts on the Pioneer Cemetery that is located between the soccer field and the Irving station, and another cemetery that is hidden in the woods near Sutherlands River.

Although the twinning option will increase access to the church, it will also result in increased noise, traffic and safety concerns. It was recognized that the bypass option will result in less traffic and noise at the church and schools and, potentially, increased safety. In general, participants felt that the twinning option would result in a positive impact on travel time while the bypass will result in a negative impact, but recognized that this is dependent on where people live relative to the option selected.

Overall, the group recognized that there would be negative impacts on community life associated with both alignment options, but believed that the overall impact would be significantly greater for the bypass option.

Mitigation suggested included avoidance or relocation of archaeological and heritage properties, maintenance or provision of access to secondary roads during construction, scheduling of construction activities built in to contract documents, stockpiling of grubbed material to form a noise barrier, implementation of dust control, and construction of retaining walls to minimize infringement on properties.

Property: Participants raised concerns regarding isolation of properties and fragmentation of lands. It was recognized that there are negative effects associated with both options, depending on where you live; however, it appears to be a much greater issue for the bypass option since, for many years, residential development proceeded assuming that the highway would eventually be twinned. Some people whose land was expropriated for the highway several decades ago moved their houses to the Sutherlands River (Thorburn Road) area and now feel threatened once more by the bypass route. Many people believe that the assurances given years ago regarding the alignment of Hwy 104 have been forgotten or ignored.

It was also recognized that some homes are in the direct path of the alignment and will be purchased, while others will not as they are close, but not close enough to meet the buy-out criteria. Again, this issue appeared to be a greater concern for the bypass option than for the twinning option.

The mitigation suggested included avoiding the isolation of properties.

Environment: Participants value wetlands and watercourses, wildlife, endangered species, forest habitat and clean air, and recognize the potential effects on these components. Some details regarding wildlife sightings, such as bald eagles and cougars, was provided. Many people believe that since the saltwater extends up Sutherlands River, fish habitat in the area of the bypass could be as much affected as that in the estuary affected by the twinning option. They agreed that the environmental impact assessment process should determine these effects. With respect to the environment, participants believe that there would be a greater loss of habitat associated with the bypass route.

With respect to mitigation, compliance with federal and provincial regulations and compensation for loss of habitat were suggested.

Health and Safety: Participants were concerned about safety along the highway and agree that either option will result in increased safety. They expressed concern for safety along secondary roads, particularly with respect to the twinning option. Participants expressed the belief that there would be a significant increase in traffic along Trunk 4, particularly near the church, which poses a safety concern. In addition, the local Fire Chief noted that emergency vehicle response time will increase with both options, yet slightly more so with the bypass option.

Mitigation suggested included provision of alternative parking for the church. Participants requested that TPW explore an alternative alignment for Trunk 4.

Questionnaire

Thirty-six exit surveys were completed and provided at the Public Working Session or subsequently mailed to Jacques Whitford. Individual responses varied, but overall the respondents indicated they believed the bypass option would have a negative impact on businesses, forestry, recreation, community life, access to properties, the use and enjoyment of properties, and the natural environment. Respondents also indicated they believed that the twinning option would not have a negative impact on local businesses, agricultural practices, forestry, and recreation, and would have a positive effect on public health and safety. Generally, the responses supported the discussions held and statements made at the Public Working Session.

NOVA SCOTIA
Transportation and Public Works

Jacques Whitford

Do You Have Anything to Add?

If you would like to comment on anything written here, or have additional comments or concerns you want to register, please send a letter or e-mail to:

Ms. Janice Comeau
Jacques Whitford Environment Limited
3 Spectacle Lake Drive
Dartmouth, NS B3B 1W8
Telephone: (902) 468-7777 ext. 251
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E-mail: jcomeau@jacqueswhitford.com

The deadline for receipt of comments is May 15th, 2004.

Thank you for your help in the preparation of this Community Impact Study!

APPENDIX B

EXIT SURVEY

NOVA SCOTIA
Transportation and Public Works

Jacques Whitford

HIGHWAY 104 UPGRADING TO FOUR LANES
NEW GLASGOW TO SUTHERLANDS RIVER

PUBLIC WORKING SESSION
March 6, 2004

EXIT SURVEY

As a final part of the working session, we ask you to complete the following questionnaire and exit survey. Your feedback will help us to confirm the importance to the community of key issues and concerns related to this project, and the relative impact of the bypass and twinning options. It will also give you an opportunity to comment on the project and the working session itself.

Name: _____

Organisation (if any): _____

Mailing Address: _____

_____

_____

Telephone: _____ **E-mail:** _____

A) **Which impacts concern you the most regarding the upgrading of Highway 104?** Please rank from 1 to 6, with **1** being the ***most important*** and **6** being the ***least important***.

_____ Local Business
_____ Agriculture and Forestry
_____ Community Life
_____ Property
_____ Environment
_____ Health and Safety

B) The following questions review a number issues related to the Highway 104 project and allow you to rank their importance in relation to your personal opinion. **Please circle the answer that best reflects your views.**

1.	The bypass option will have a negative impact on local businesses	I agree	-	Somewhat agree	-	Disagree	- No Opinion
2.	The twinning option will have a negative impact on local businesses	I agree	-	Somewhat agree	-	Disagree	- No Opinion
3.	The bypass option will increase economic development opportunities	I agree	-	Somewhat agree	-	Disagree	- No Opinion
4.	The twinning option will increase economic development opportunities	I agree	-	Somewhat agree	-	Disagree	- No Opinion

5.	The bypass option will have a negative impact on agricultural practices	I agree	-	Somewhat agree	-	Disagree	- No Opinion
6.	The twinning option will have a negative impact on agricultural practices	I agree	-	Somewhat agree	-	Disagree	- No Opinion
7.	Agriculture is not particularly important in the project area	I agree	-	Somewhat agree	-	Disagree	- No Opinion
8.	The bypass option will have a negative impact on forestry	I agree	-	Somewhat agree	-	Disagree	- No Opinion
9.	The twinning option will have a negative impact on forestry	I agree	-	Somewhat agree	-	Disagree	- No Opinion
10.	Forestry is not particularly important in the project area	I agree	-	Somewhat agree	-	Disagree	- No Opinion
11.	The bypass option will have a negative impact on recreation	I agree	-	Somewhat agree	-	Disagree	- No Opinion
12.	The twinning option will have a negative impact on recreation	I agree	-	Somewhat agree	-	Disagree	- No Opinion
13.	Recreation is not particularly important in the project area	I agree	-	Somewhat agree	-	Disagree	- No Opinion
14.	The bypass option will have a negative impact on community life	I agree	-	Somewhat agree	-	Disagree	- No Opinion
15.	The twinning option will have a negative impact on community life	I agree	-	Somewhat agree	-	Disagree	- No Opinion
16.	The bypass option will negatively affect access to properties	I agree	-	Somewhat agree	-	Disagree	- No Opinion
17.	The twinning option will negatively affect access to properties	I agree	-	Somewhat agree	-	Disagree	- No Opinion
18.	The bypass option will have a negative impact on use and enjoyment of land	I agree	-	Somewhat agree	-	Disagree	- No Opinion
19.	The twinning option will have a negative impact on use and enjoyment of land	I agree	-	Somewhat agree	-	Disagree	- No Opinion
20.	The bypass option will negatively impact the natural environment	I agree	-	Somewhat agree	-	Disagree	- No Opinion
21.	The twinning option will negatively impact the natural environment	I agree	-	Somewhat agree	-	Disagree	- No Opinion
22.	Environmental issues are not particularly important in this decision	I agree	-	Somewhat agree	-	Disagree	- No Opinion
23.	The bypass option will negatively affect public health and safety	I agree	-	Somewhat agree	-	Disagree	- No Opinion
24.	The twinning option will negatively affect public health and safety	I agree	-	Somewhat agree	-	Disagree	- No Opinion

NOVA SCOTIA
Transportation and Public Works

Jacques Whitford

Additional Issues or Concerns:

C) Please answer the following questions on today's working session:

1. Do you feel that during the working session you were able to comment on the issues and concerns associated with each of options for the Highway 104 upgrade?

❑ YES ❑ NO

2. Do you feel that you were provided with enough background information regarding the project to provide an informed opinion on the options?

❑ YES ❑ NO

3. Do you feel that the public working session was an effective way to provide your opinions on the project and to express your concerns?

❑ YES ❑ NO

4. Do you feel more or less confident in the value of the working session and feedback process?

❑ YES ❑ NO

General Comments: